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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,638	01/19/2005	Peter Koch	DV/4-32596A	2649
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EXAMINER				
MENON, KRISHNAN S				
ART UNIT		PAPER NUMBER		
1797				
MAIL DATE		DELIVERY MODE		
03/18/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/521,638

**Applicant(s)**

KOCH ET AL.

**Examiner**

Krishnan S. Menon

**Art Unit**

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Claims 1-18 are pending as amended on 2/21/08.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 now recites "a method of preparing samples ... comprising the steps of dissolving or dispersing a sample in at least one ionic liquid ... and volatilizing the volatile components of the sample". In this recited method, the 'volatilizing' part is deemed new matter because there is no support for this part in the specification and original claims. While volatilizing is disclosed for the head-space analysis, it is not part of the sample preparation. For the same reason, this step is also not enabling, since if the sample is volatilized during preparation, it may not produce any results during the analysis.

***Claim Rejections - 35 USC § 103***

Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armstrong et al., "Examination of ionic liquids and their interactions with molecules, when used as stationary phases in gas chromatography", Anal. Chem. 1999, **71**, 3873-3876, (hereinafter: "Armstrong") in view of JP-4215062 and additional references as evidence listed below.

Applicant's claims are directed to a method of preparing samples by dissolving or dispersing the sample in an ionic liquid. The dependent claims recite details of the physical properties of the ionic liquids, as well as their chemical compositions.

Armstrong teaches gas chromatography using room-temperature ionic liquids as the stationary phase in the chromatography column, and describes the various ionic liquids. Armstrong teaches that RTILs can solubilize "a number of complex polar molecules". However, Armstrong does not teach preparing samples using the ionic liquids as claimed for headspace gas chromatography.

The JP reference teaches headspace gas chromatography using inorganic salts and/or water as the solvent/dispersion phase, and describes headspace gas chromatography for analyzing aromatics from liquor. The samples are prepared by mixing the liquor in water and/or inorganic salt in a closed container.

Also, the headspace chromatography is well known in the art, and samples for this method are prepared by dissolving or dispersing the material to be analyzed in a suitable solvent/solvent mixture. The choice of the solvent/dispersion medium is based on various factors such as solubility, vapor pressure of the medium, volatility of the

component to be analyzed, etc. Further teaching references on this topic for evidence are attached herewith to show that the method of preparing the headspace sample is well known. They are:

(1) Nagai Yumi, Science Links Japan: Analysis of Residual solvents in pharmaceuticals by headspace gas chromatography, Shimadzu review, (2002): this reference teaches that the sample solution is made in a suitable solvent.

(2) Kumar, et al, "Headspace gas chromatography method for the analysis of volatile impurities in hormone replacement trans-dermal patch", Journal of Chromatography A, 859 (1999) 113-118: in this ref, sample is prepared by extracting the material in organic solvents.

(3) Russo: "Static headspace gas chromatography of residual solvents in pharmaceutical products", Chromatographia vol 39, no 11/12, December 1994: this reference teaches preparing sample in 2M sodium chloride solution.

Thus, these references and the JP reference teach that the sample for headspace gas chromatography is prepared by dissolving or dispersing the sample material in a suitable solvent or dispersion phase, and can include water, organic solvents, salt solutions, salts, etc. Applicant also implies in paragraphs 5 and 7 (of the Pre-Grant Publication) that method of preparing the sample in solvents is known. The choice of selection of the solvent would be within the skill level of one of ordinary skill in the art. It would be obvious to one of ordinary skill in the art at the time of invention to use the RTILs taught by Armstrong in preparing headspace samples for GC analysis as solvent or dispersant in the well known methods of head-space gas chromatography

because of the great advantages of using the ionic liquids as taught by Armstrong (see the introductory paragraphs of Armstrong on page 3873).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Sample can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Krishnan S Menon/  
Primary Examiner, Art Unit 1797